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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/034,158	12/20/2001	Zhong-Min Wei	21829/230 (EBC-015)	9509

7590

05/01/2003

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EXAMINER

KUBELIK, ANNE R

ART UNIT PAPER NUMBER

1638

DATE MAILED: 05/01/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/034,158

Applicant(s)

WEI, ZHONG-MIN

Examiner

Anne R. Kubelik

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 February 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) 6 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 7-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on with the application is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 9.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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DETAILED ACTION

1. Applicant's election with traverse of Group I (claims 41-54 and 58-77, to the extent they read on a hypersensitive response elicitor protein from *Erwinia amylovora*) in Paper No. 7, filed 11 February 2003, is acknowledged.

The traversal is also on the grounds that the restriction among the various hypersensitive response elicitor proteins is improper because it ignores the relatedness of the proteins. The response reiterates the Declaration of Dr. Zhong-Min Wei, also filed 11 February 2003, and both will be summarized together (all cited references were sent with the Declaration): Hypersensitive response elicitor proteins are an art-recognized class of proteins and share the unique ability to cause distinct plant responses. Gopalan et al (1996, Plant Dis. 80:604-610) teaches that the hypersensitive response results from an incompatible interaction between plant pathogens and non-host plants and this reaction is distinct from a compatible interaction. Gopalan also teaches that hypersensitive response elicitor proteins from one genus are often homologous to elicitors of a different species and genus. Bauer et al (1995, MPMI 8:484-491), Cui et al (1996, MPMI 9:565-573), Ahmad et al (1996, 8th Int'l Cong. Molec. Plant Microbe Inter.), and Preston et al (1995, MPMI 8:717-732) teach that a nucleic acid encoding a hypersensitive response elicitor protein from one bacterial species was used to isolate a nucleic acid encoding a hypersensitive response elicitor protein from the same genus. Bonas (1994, Current Topics in Microbiol. Immunol. 192:79-98), Alfano et al (1997, J. Bacteriol. 179:5655-5662), and Swanson et al (1999, Phytopath. 90:S75) teach that genes encoding hypersensitive response elicitors are arranged in gene clusters. Bogdanove et al (1996, Molec. Microbiol. 20:681-683) teach that most hypersensitive response

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elicitors are secreted through the type III secretion system. Bonas (*op cit*) and Wei et al (2000, MPMI 13:1251-1262) teach that the genes are regulated by environmental factors. Bonas (*op cit*), Bonas (1994, Trends Microbiol. 2:1-2), Alfano (*op cit*), Gopalan (*op cit*), and Fan et al (WO 01/98501) teach that hypersensitive response elicitor proteins share common characteristics and structure. Wei et al al (1996, Acta Hort. 411:223-225) Alfano (*op cit*), Strobel et al (1996, Plant J. 9:431-439) and Qui et al (US Patent 6,277,814) teach that hypersensitive response elicitors induce plant responses that include disease resistance to a broad range of pathogens and enhance plant growth. The Declaration presents data showing that topical application of the hypersensitive response elicitor protein from *Xanthomonas campestris* pv. *pelargonii* (HreX) induced resistance to diseases caused by other pathogens and enhanced plant growth; topical application of the hypersensitive response elicitor protein from *Pseudomonas syringae* also enhanced plant growth. Wei et al (WO 00/28055) teach that HrpN induces resistance to plant stress, and the Declaration presents data showing that topical application of HreX also induces plant stress resistance.

This is not found persuasive because, as stated in MPEP 803.04, different proteins are structurally distinct chemical compounds, as admitted by Applicant on pg 1, paragraph 3, of the response. Different proteins are thus unrelated to each other and constitute independent and distinct inventions. Thus, methods utilizing different proteins are also independent and distinct inventions. Additionally, each protein would require a separate search of the databases.

It is noted that Applicant does not state that prior art regarding use of a one hypersensitive response elicitor would render the others obvious.

The traversal is also on the grounds that SEQ ID NOs:2, 4, 6 and 8 are known in the art,

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and Applicant is merely claiming their use. Applicant urges that limiting the claimed invention to use of a nucleic acid encoding a specific hypersensitive response elicitor negates the breadth of the invention as claimed (response pg 7). This is not found persuasive because linking claims are being treated as linking claims (see the paragraph spanning pg 2-3 of the restriction requirement mailed 21 January 2003); thus, the breadth of the invention is not negated.

The requirement is still deemed proper and is therefore made FINAL.

A search of the prior art, also found art on hypersensitive response elicitors from *Erwinia chrysanthemi*, *Pseudomonas syringae*, *P. solanacearum*, and a *Xanthomonas* species. Thus, the claims will also be examined to the extent they read on elicitors from those species.

Claim 6 is drawn to a non-elected invention, and is thus withdrawn from consideration. Claims 1-5 and 7-9 are examined to the extent they read on hypersensitive response elicitor proteins from *E. amylovora*, *E. chrysanthemi*, *P. syringae*, *P. solanacearum*, and a *Xanthomonas* species.

2. Certain references in the information disclosure statement filed with the application fail to comply with the provisions of 37 CFR 1.97, 1.98 and MPEP § 609 because the citation was incomplete or a translation was missing; those citations have been crossed out. Those references have been placed in the application file, but the information referred to therein has not been considered as to the merits. Applicant is advised that the date of any re-submission of any item of information contained in this information disclosure statement or the submission of any missing element(s) will be the date of submission for purposes of determining compliance with the requirements based on the time of filing the statement, including all certification requirements for

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statements under 37 CFR 1.97(e). See MPEP § 609 ¶ C(1).

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 1-3 and 7-9 rejected under 35 U.S.C. 112, first paragraph, as containing subject matter that was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Neither the instant specification nor the originally filed claims appear to provide support for the phrase “drought resistance”. The paragraph spanning pg 51-52 of the specification only refers to tolerance to drought stress conditions. Thus, such a phrase constitutes NEW MATTER. In response to this rejection, Applicant is required to point to support for the phrase or to cancel the new matter.

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1-3 and 7-9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter that Applicant regards as the invention. Dependent claims are included in all rejections.

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Claim 1 is indefinite in its recitation of “conditions effective to impart drought resistance”. It is unclear what these conditions are, as they are not recited in the claim and are not defined in the specification.

Claim 3 is indefinite in its recitation of “and” in line 3. Does the method use a hypersensitive response elicitor that is found in ALL the recited *Erwinia* species, or is the elicitor from any one of those species? If the latter, “and” should be replaced with --or--.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. Claims 1-5 and 7-9 are rejected under 35 U.S.C. 102(e) as being anticipated by Wei et al (US Patent 5,776,889, filed June 1995).

The applied reference has a common [assignee OR inventor] with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention “by another,” or by an appropriate showing under 37 CFR 1.131.

As the phrase “conditions effective to impart drought resistance” is not defined by the specification or the claims, for purposes of examination, application under any conditions was

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assumed to be effective to impart drought resistance.

Wei et al teach a method of imparting pathogen resistance to plants by topical application of hypersensitive response elicitors from *E. amylovora*, *E. chrysanthemi*, *P. syringae*, *P. solanacearum*, and *X. campestris* (claims 1-18 and 24). The plants were treated before they could have experienced any drought (see column 21, lines 36-46). This method of imparting pathogen resistance would inherently impart drought resistance because the method steps of the instantly claimed method and the methods steps taught by Wei et al are identical.

9. Claims 1-5 and 7-9 are rejected under 35 U.S.C. 102(e) as being anticipated by Wei et al (US Patent 5,859,324, filed June 1995).

The applied reference has a common [assignee OR inventor] with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention “by another,” or by an appropriate showing under 37 CFR 1.131.

As the phrase “conditions effective to impart drought resistance” is not defined by the specification or the claims, for purposes of examination, application under any conditions was assumed to be effective to impart drought resistance.

Wei et al teach a method of imparting pathogen resistance to plants by topical application of a hypersensitive response elicitor from *E. amylovora* (column 20, line 52, to column 23, line 21) and plants to which has been topically applied hypersensitive response elicitors from *E. amylovora*, *E. chrysanthemi*, *P. syringae*, *P. solanacearum*, and *X. campestris* (claims 1-18). The plants were treated before they could have experienced any drought (see column 20, lines 54-64). This method of producing these plants would inherently impart drought resistance because the method steps of

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the instantly claimed method and the methods steps taught by Wei et al are identical.

Double Patenting

10. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

11. Claims 1-3 and 7-9 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-3, 5, 9-20, 28-29, 33 and 35 of U.S. Patent No. 6,277,814. An obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but an examined application claim not is patentably distinct from the reference claim(s) because the examined claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985).

Although the conflicting claims are not identical, they are not patentably distinct from each other because the method of enhancing growth by topical application of hypersensitive response elicitors from *E. amylovora*, *E. chrysanthemi*, *P. syringae*, *P. solanacearum*, and *X. campestris*, as

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claimed in the issued patent, would inherently impart drought resistance to the plants, as claimed in the instant application, because the method steps of both methods are identical. Furthermore, hypersensitive response elicitors that are heat stable, glycine rich and that contain no cysteine, as claimed in the issued patent, would be a species of the genus of hypersensitive response elicitors, as claimed in the instant application.

12. Claims 1-5 and 7-9 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-24 of U.S. Patent No. 5,776,889. An obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but an examined application claim not is patentably distinct from the reference claim(s) because the examined claim is either anticipated by, or would have been obvious over, the reference claim(s). See, *e.g.*, *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985).

Although the conflicting claims are not identical, they are not patentably distinct from each other because the method of imparting pathogen resistance to plants by topical application of hypersensitive response elicitors from *E. amylovora*, *E. chrysanthemi*, *P. syringae*, *P. solanacearum*, and *X. campestris*, as claimed in the issued patent, would inherently impart drought resistance to the plants, as claimed in the instant application, because the method steps of both methods are identical.

13. Claims 1-5 and 7-9 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-18 of U.S. Patent No. 5,859,324. An

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obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but an examined application claim not is patentably distinct from the reference claim(s) because the examined claim is either anticipated by, or would have been obvious over, the reference claim(s). See, *e.g.*, *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985).

Although the conflicting claims are not identical, they are not patentably distinct from each other because the method of producing plants to which has been topically applied hypersensitive response elicitors from *E. amylovora*, *E. chrysanthemi*, *P. syringae*, *P. solanacearum*, and *X. campestris*, as claimed in the issued patent, would inherently impart drought resistance to the plants, as claimed in the instant application.

Conclusion

14. No claim is allowed.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anne R. Kubelik, whose telephone number is (703) 308-5059. The examiner can normally be reached Monday through Friday, 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amy Nelson, can be reached at (703) 306-3218. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and (703) 872-9307 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to Customer Service at (703) 308-0198.

Anne R. Kubelik, Ph.D.
April 24, 2003



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